MATI 4211: Intelligent Systems Architectures– Summer 2017

Homework #0

This homework does not have a turn-in deliverable and it is not subject to grading.
We however strongly recommend that every student goes through it
thoroughly, ideally before starting work on Homework #1.

Software installation
Download R: http://www.r-project.org/
Download R studio: http://rstudio.org/
The links above will lead you to downloading the latest version of both R and R Studio
Watching a 2-minute screencast available on R Studio homepage will be helpful in getting familiar with it.
However, the IDE is quite intuitive so feel free to simply navigate through it.

Exercises
The next step is to load the R examples provided in this Homework package into R Studio and to study the code. The goals of this exercise are to:
1. Make sure that the environment works properly after being installed on your computer
2. Become familiar with the interactive mode (type in the console and get an immediate answer) and the scripting mode (write R script and run it as a whole by typing source('xxx.R') in the console)
3. Become familiar with the package installation process
4. Become familiar with the basics of input/output functionality
5. Become familiar with functions, loops, and data structures.

The attached example R code is thoroughly documented. Please read it carefully. One of the excellent methods of learning R is to read the code written by somebody else, and trying to understand what the code is doing. Many of the functions presented in R examples can become useful in homework and projects.
In hw0_example1.R, we will generate data from normal distribution, compute basic statistics of the data and produce a simple plot.
In hw0_example2.R, we will load data from a provided csv file, and perform some basic querying and manipulation of the resulting data frame. This file contains examples and exercises. It is advisable to try coming up with your own solutions to the exercises, before checking out the example solutions provided.

Resources
Quick R - http://www.statmethods.net/index.html, this is a clearly written online tutorial to R. It enables searching for content.
Plyr – excellent package for data manipulation in R: http://plyr.had.co.nz/
ggplot2 (ultimate flexibility in producing elegant graphics in R)
- http://ggplot2.org/
- http://www.r-bloggers.com/a-very-quick-introduction-to-ggplot2/